

ATTACHMENT E

Request for Approval to Cancel Permit Source of Atmospheric Emissions of Radionuclides

I. Name and Address of Applicant

U.S. Department of Energy
West Valley Demonstration Project
10282 Rock Springs Road
West Valley-, Now York 14171

Operating Contractor:

West Valley Nuclear Services Co., LLC.
10282 Rock Springs Road
West Valley, New York 14171

II. Name and Location of Source

Name: **Contact Size Reduction and Decontamination Facility (CSRF)
Ventilation System**

Location: **West Valley Demonstration Project
10282 Rock Springs Road
West Valley, New York**

Latitude: 42 degrees 27 minutes N

Longitude: 78 degrees 39 minutes W

Date of Final Approval: October 5, 1987

Date of Startup: October 13, 1987

III. Release Point Information

Emission Point ID:	CSRF
Ground Elevation (Ft MSL):	1415
Stack Height (Ft):	195
Height Above Structure (Ft):	15
Inside Dimension (Inches):	21
Exit Temperature (degrees F):	100
Exit Velocity (Ft/Sec):	42
Exit Volume (ACFM):	6000

IV Overview of Operations

The Contact Size Reduction Facility (CSRF) was constructed to process "contact handled" (i.e., material having less than 100 mrem/hr surface dose rate) low-level and transuranic metal wastes generated from decontamination of the spent nuclear fuel reprocessing facility at West Valley. Large pipes and vessels are reduced by a variety of methods, including plasma arc cutting, portable band saws and abrasive cutting. Metal decontamination will be performed by either high pressure water spray (for large pieces) or by liquid abrasive decontamination spray (LADS). Sectioned and decontaminated wastes will be repackaged for storage and disposal. The CSRF is located in the north room of the Master Slave Manipulator repair shop (MSM). Waste boxes enter the facility through the west airlock to a stainless steel lined cutting room. The waste is unpackaged, and packing materials are removed from the room. The metal waste is then either sectioned directly or taken into the water spray booth and decontaminated prior to sectioning. Sectioned pieces and small waste pieces are passed into the LADS booth for final decontamination and repackaging. Repackaged decontaminated material is removed from the facility through a roll-up door in the LADS operating aisle.

Ventilation is the primary means of contamination control in the CSRF, and is provided on a continuous basis by a combination of ventilation in the MSM, which is directed to the main plant stack, and the CSRF Ventilation system. A 6,000 cfm ventilation system provides additional capacity necessary for contamination control for CSRF operations. This system draws 6,000 cfm from the cutting room, the area with the greatest airborne contamination potential. HEPA filtered pressure control dampers are provided to establish the proper air pressure gradient from clean to contaminated areas and to contain contamination in the cutting room should backflow occur. Ventilation exhaust from this system is passed through a bank of prefilters prior to double stage HEPA filtration. Following filtration, the exhaust is routed through a 20 inch duct to a discharge point approximately 15 ft. above the highest point of the process building structure.

V. Source Term Development

The contaminated equipment processed in the CSRF was assumed to be the equivalent of having a uniform distribution of radioactive contamination on all inside surfaces of a B-25 waste box (approximate dimensions 4'x4'x6'). The concentration of contamination was determined by assuming a dose rate of 100 mR/hr at a distance of 2 inches from the 4'x6' surface of the box. It was assumed that the dose rate was the result of Ba-137m in equilibrium with Cs-137. Using MicroShield 4.0 and the HLW distribution from Wolniewicz (March 1993), the concentration of contamination was calculated. The B-25 waste box was assumed to be constructed of 0.4 cm thick stainless steel. See Table 1 for the radionuclide distribution.

It was assumed that the boxes were processed by using a plasma arc torch to cut along the edges of the box. Since the lid of the box (one of the 4'x6' sides) is completely detachable, only eight cuts were assumed to be made to the box. Also, it was assumed that the CSRF processes an equivalent of 100 B-25 waste boxes per year. For this source term, it was further assumed that all contamination is volatilized from all surfaces except the lid during cutting.

The CSRF ventilation system is cleaned by trains comprised of one pre-filter and two HEPA

filters in series. The pre-filter has a decontamination factor (DF) of 10 and each of the HEPA filters has a DF of 100 per 40 CFR 61, Appendix D. No abatement is assumed for H-3, C-14, and I-129.

VI.. Dose Assessment

The PEDE to the MEOSI was calculated using CAP88-PC modeling and 40 CFR 61 Appendix D in accordance with 61.96(b). The Dose Assessment Synopsis and Summary are attached.

VII.. Permit Applicability

Based on potential emissions from this source during normal operations and standards established in 40 CFR 61 Subpart H, WVDP has determined that operation of this source will not result in potential emissions that necessitate a NESHAP Permit under 40 CFR 61 Subpart H.

Table 1 - CSRF Maximum Abated Emissions

Boxes size-reduced per year:

100 boxes

Radionuclides	Scaling Factor to Cs-137	Released During Cutting (Ci)	Inverse DF	S.T. from 1 B-25 Box (Ci)	S.T. from 100 B-25 Boxes (Ci/yr)
C-14	1.99E-05	2.893E-06	1	2.89E-06	2.89E-04
Co-60	3.54E-03	5.147E-04	1E-05	5.15E-09	5.15E-07
Sr-90	9.26E-01	1.346E-01	1E-05	1.35E-06	1.35E-04
Y-90	9.26E-01	1.346E-01	1E-05	1.35E-06	1.35E-04
I-129	5.34E-08	7.764E-09	1	7.76E-09	7.76E-07
Cs-137	1.00E+00	1.454E-01	1E-05	1.45E-06	1.45E-04
Ba-137m	9.46E-01	1.375E-01	1E-05	1.38E-06	1.38E-04
Eu-154	1.18E-02	1.716E-03	1E-05	1.72E-08	1.72E-06
U-232	2.42E-04	3.519E-05	1E-05	3.52E-10	3.52E-08
U-233	3.40E-04	4.944E-05	1E-05	4.94E-10	4.94E-08
U-234	1.62E-04	2.355E-05	1E-05	2.36E-10	2.36E-08
U-238	3.04E-05	4.420E-06	1E-05	4.42E-11	4.42E-09
Pu-238	5.32E-02	7.735E-03	1E-05	7.74E-08	7.74E-06
Pu-239	1.37E-02	1.992E-03	1E-05	1.99E-08	1.99E-06
Pu-240	1.04E-02	1.512E-03	1E-05	1.51E-08	1.51E-06
Pu-241	5.14E-01	7.474E-02	1E-05	7.47E-07	7.47E-05
Pu-242	1.36E-05	1.977E-06	1E-05	1.98E-11	1.98E-09
Am-241	9.96E-03	1.448E-03	1E-05	1.45E-08	1.45E-06
Am-242m	1.22E-04	1.774E-05	1E-05	1.77E-10	1.77E-08
Am-243	7.27E-04	1.057E-04	1E-05	1.06E-09	1.06E-07
Cm-244	2.31E-03	3.359E-04	1E-05	3.36E-09	3.36E-07

CAP88-PC Synopsis and Summary Files
Contact Size Reduction Facility (CSRF) Ventilation System

C A P 8 8 - P C
Version 1.00
Clean Air Act Assessment Package - 1988

S Y N O P S I S R E P O R T

Non-Radon Individual Assessment

May 11, 1999 7:52 am

Facility: West Valley Demonstration Project
Address: 10282 Rock Springs Road
City: West Valley
State: NY Zip: 14171-9799

Source Category: Ground Level ARP
Source Type: Stack
Emission Year: 1999

Comments: CSRF Appendix D Dose Assessment

Dataset Name: CSRF Appendix D
Dataset Date: May 11, 1999 7:50 am
Wind File: WNDFILES\5YRAV10M.WND

RADIONUCLIDE EMISSIONS DURING THE YEAR 1999

Nuclide	Class	Size	Source #1 Ci/y	TOTAL Ci/y
C-14	*	0.00	2.9E-04	2.9E-04
CO-60	Y	1.00	5.2E-07	5.2E-07
SR-90	D	1.00	1.3E-04	1.3E-04
Y-90	Y	1.00	1.3E-04	1.3E-04
I-129	D	1.00	7.8E-07	7.8E-07
CS-137	D	1.00	1.4E-04	1.4E-04
BA-137M	D	1.00	1.4E-04	1.4E-04
EU-154	W	1.00	1.7E-06	1.7E-06
U-232	Y	1.00	3.5E-08	3.5E-08
U-233	Y	1.00	4.9E-08	4.9E-08
U-234	Y	1.00	2.4E-08	2.4E-08
U-238	Y	1.00	4.4E-09	4.4E-09
PU-238	Y	1.00	7.7E-06	7.7E-06
PU-239	Y	1.00	2.0E-06	2.0E-06
PU-240	Y	1.00	1.5E-06	1.5E-06
PU-241	Y	1.00	7.5E-05	7.5E-05
PU-242	Y	1.00	2.0E-09	2.0E-09
AM-241	W	1.00	1.5E-06	1.5E-06
AM-242M	W	1.00	1.8E-08	1.8E-08
AM-243	W	1.00	1.1E-07	1.1E-07
CM-244	W	1.00	3.4E-07	3.4E-07

SITE INFORMATION

Temperature: 8 degrees C
Precipitation: 102 cm/y
Mixing Height: 1000 m

SOURCE INFORMATION

Source Number: 1

Stack Height (m): 24.08
Diameter (m): 0.53

Plume Rise
Momentum (m/s): 1.28E+01
(Exit Velocity)

AGRICULTURAL DATA

	Vegetable	Milk	Meat
Fraction Home Produced:	0.700	0.399	0.442
Fraction From Assessment Area:	0.300	0.601	0.558
Fraction Imported:	0.000	0.000	0.000

Food Arrays were not generated for this run.
Default Values used.

DISTANCES USED FOR MAXIMUM INDIVIDUAL ASSESSMENT

1400	1800	1900	2100	2200	2300	2400	2500	2700	3000
3100	3300								

C A P 8 8 - P C

Version 1.00

Clean Air Act Assessment Package - 1988

D O S E A N D R I S K E Q U I V A L E N T S U M M A R I E S

Non-Radon Individual Assessment
May 11, 1999 7:52 am

Facility: West Valley Demonstration Project
Address: 10282 Rock Springs Road
City: West Valley
State: NY Zip: 14171-9799

Source Category: Ground Level ARP
Source Type: Stack
Emission Year: 1999

Comments: CSRF Appendix D Dose Assessment

Dataset Name: CSRF Appendix D
Dataset Date: May 11, 1999 7:50 am
Wind File: WNDFILES\5YRAV10M.WND

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

Direction	Distance (m)						
	1400	1800	1900	2100	2200	2300	2400
N	3.0E-03	2.4E-03	2.3E-03	2.1E-03	2.0E-03	1.9E-03	1.8E-03
NNW	2.6E-03	2.0E-03	1.9E-03	1.7E-03	1.6E-03	1.6E-03	1.5E-03
NW	1.3E-03	1.0E-03	9.5E-04	8.6E-04	8.2E-04	7.8E-04	7.4E-04
WNW	5.8E-04	4.5E-04	4.3E-04	3.9E-04	3.7E-04	3.5E-04	3.4E-04
W	4.6E-04	3.5E-04	3.3E-04	3.0E-04	2.9E-04	2.7E-04	2.6E-04
WSW	3.7E-04	2.8E-04	2.7E-04	2.4E-04	2.3E-04	2.2E-04	2.1E-04
SW	4.2E-04	3.2E-04	3.0E-04	2.7E-04	2.6E-04	2.5E-04	2.4E-04
SSW	4.1E-04	3.1E-04	2.9E-04	2.6E-04	2.5E-04	2.4E-04	2.3E-04
S	6.1E-04	4.5E-04	4.2E-04	3.8E-04	3.6E-04	3.4E-04	3.2E-04
SSE	1.6E-03	1.1E-03	1.1E-03	9.3E-04	8.7E-04	8.2E-04	7.7E-04
SE	2.9E-03	2.1E-03	1.9E-03	1.7E-03	1.6E-03	1.5E-03	1.4E-03
ESE	2.2E-03	1.6E-03	1.5E-03	1.3E-03	1.2E-03	1.2E-03	1.1E-03
E	1.7E-03	1.3E-03	1.2E-03	1.1E-03	1.0E-03	9.6E-04	9.1E-04
ENE	1.6E-03	1.2E-03	1.1E-03	1.0E-03	9.4E-04	9.0E-04	8.5E-04
NE	2.1E-03	1.6E-03	1.5E-03	1.3E-03	1.3E-03	1.2E-03	1.2E-03
NNE	2.5E-03	1.9E-03	1.8E-03	1.6E-03	1.5E-03	1.4E-03	1.4E-03

Direction	Distance (m)				
	2500	2700	3000	3100	3300
N	1.7E-03	1.6E-03	1.4E-03	1.3E-03	1.3E-03
NNW	1.4E-03	1.3E-03	1.2E-03	1.1E-03	1.1E-03
NW	7.1E-04	6.5E-04	5.8E-04	5.6E-04	5.2E-04
WNW	3.2E-04	3.0E-04	2.7E-04	2.6E-04	2.5E-04
W	2.5E-04	2.3E-04	2.1E-04	2.1E-04	2.0E-04
WSW	2.1E-04	1.9E-04	1.8E-04	1.7E-04	1.6E-04
SW	2.3E-04	2.1E-04	1.9E-04	1.9E-04	1.8E-04
SSW	2.2E-04	2.0E-04	1.9E-04	1.8E-04	1.7E-04
S	3.1E-04	2.8E-04	2.5E-04	2.4E-04	2.3E-04
SSE	7.3E-04	6.6E-04	5.7E-04	5.5E-04	5.1E-04
SE	1.3E-03	1.2E-03	1.0E-03	9.8E-04	9.0E-04
ESE	1.0E-03	9.3E-04	8.1E-04	7.8E-04	7.2E-04
E	8.6E-04	7.9E-04	6.9E-04	6.6E-04	6.1E-04
ENE	8.1E-04	7.4E-04	6.5E-04	6.3E-04	5.9E-04
NE	1.1E-03	1.0E-03	8.8E-04	8.5E-04	7.9E-04
NNE	1.3E-03	1.2E-03	1.1E-03	1.0E-03	9.5E-04

Shaded values indicate the location of the nearest residence in the designated direction

DRAWING NUMBER

DRAWING NUMBER

9000-1611

DRAWING NUMBER

DRAWING NUMBER

DRAWING NUMBER

9000-1611

8

7

6

5

4

3

DWG NO.

SH

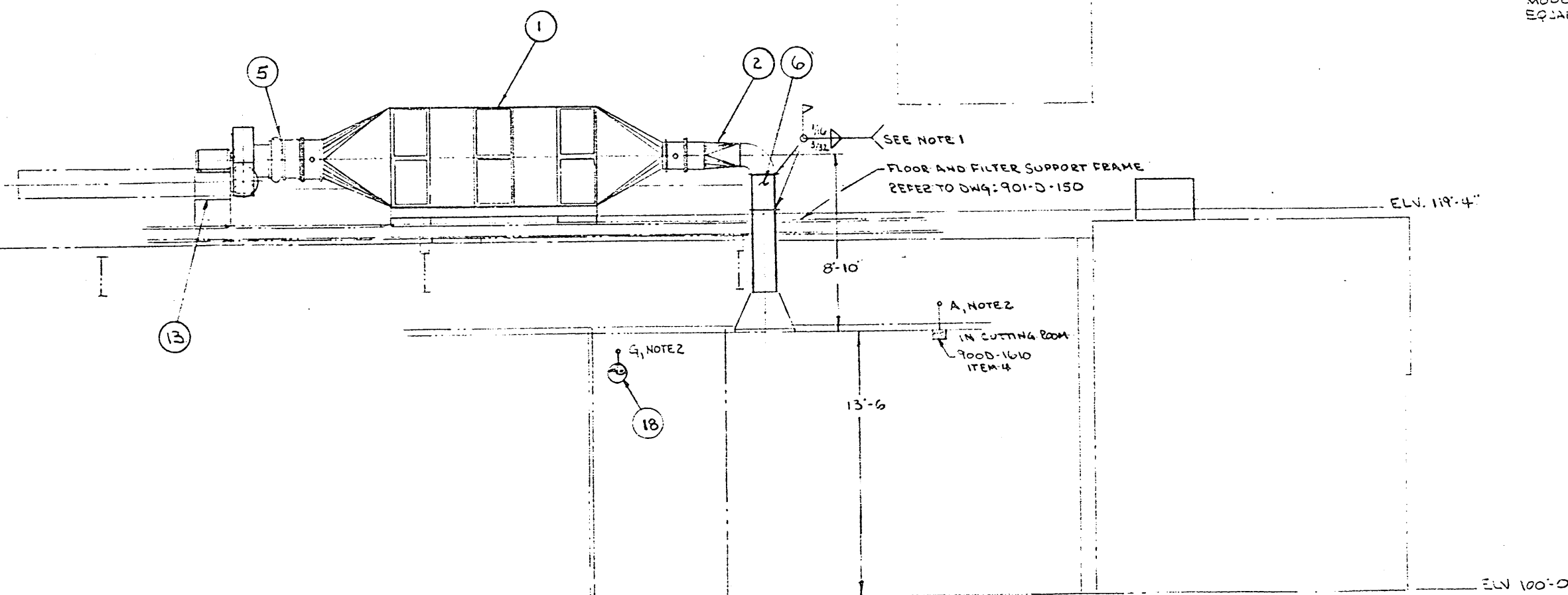
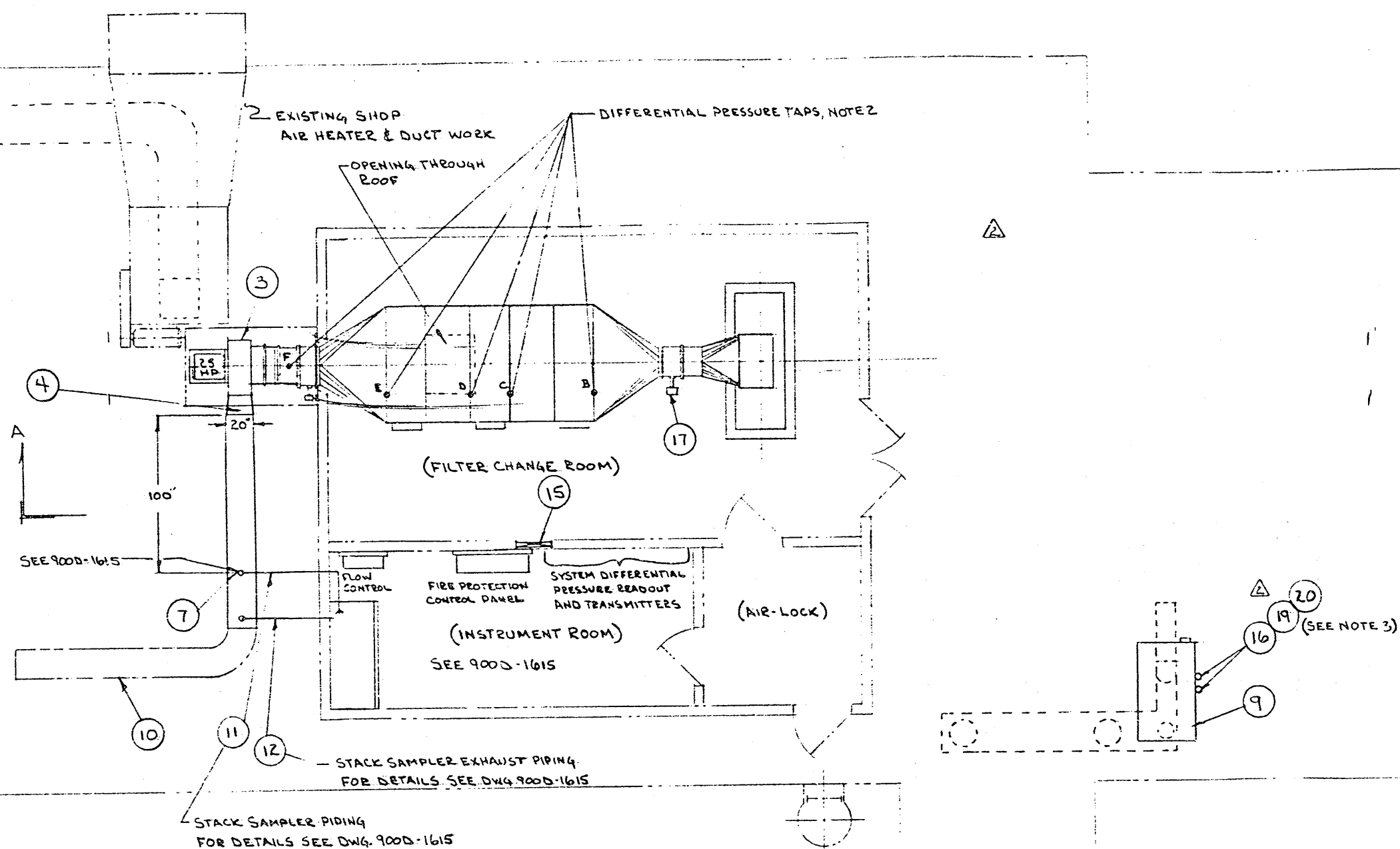
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REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED
	0	ER979	1/12/87	24
	1	REVISED PER ECN 1489A	3/11/87	15
	2	REVISED PER ECN 1603	1/24/87	15
	3	REVISED PER ECN 1652	7/23/87	15



NORTH



SECTION A-A

NOTE:

1. VISUAL INSPECTION PER CS-136 SEC. 15300, PARAGRAPH 2.4
2. EXISTING STATIC PRESSURE TAPS ARE 1/4" NPT PIPE NIPPLE
3. ROUTE STEAM AND CONDENSATE LINES BETWEEN THE EXISTING 25 LB. STEAM HEADER AND CONDENSATE RETURN TANK IN THE SOUTH MSM SHOP, AND THE NEW ITEM 9. INSTALL REDUCING VALVES, CONTROL VALVES AND TRAPS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS, AND CS 136.

SCALE: 1/4" = 1'-0"

- VENDORS:
- A - RUPO INDUSTRIES, INC.
BURNSVILLE, MN. OR EQUAL
 - B - HARTZEL FAN INC.
PIQUA, OHIO
 - C - A.C.C. ANTIB CONTROL CORP.
MODEL E53 OR APPROVED
EQUAL (315) 472-5515

21	WEATHER JACKET, SMOOTH SURFACE .016" THICK ALUMINUM	ALUMINUM
20	INSULATION, 1 1/2" THICK, WITH ALL JOINTS JACKETED	COMMERCIAL FIBERGLASS
19	HEV BACK-UP DAMPER	9000-1610 (ST-1) ASSY
18	ACTUATORS WITH MOUNTING BRACKETS	SURE 44 ASSY
17	STEAM SUPPLY AND CONDENSATE RETURN	COMMERCIAL 1/2" 3/8"
16	SHUTTER, BACK DRAFT 18" X 18"	COMMERCIAL GALVANIZED
15	INLET VANE DAMPER ACTUATOR	CS 136 ASSY
14	INSULATION FEET	COMMERCIAL SPEC. FROM 162
13	EXHAUST TUBE 1 1/4" O.D. X 3'-0"	9000-1615 2" SSER
12	SAMPLE PIPING	9000-1615 ASSY
11	EXHAUST DUCT ROUTING	9000-1608 ASSY
10	AIR-LOCK VENTILATING AND HEATING	SCFA 15 ASSY
9	INLET VANE DAMPER, AMERICAN WARNING	VC-23-1 ASSY
8	ISO KINETIC SAMPLING PROBES	9000-1615 1/2" 3/8"
7	INLET DUCT EXTENSION	9000-164-107 ASSY
6	FLANGE ADAPTER & FLEX JOINT	9000-164-101 ASSY
5	FLEX MOUNT	9000-164-102 ASSY
4	FAN & MOTOR 18" COUNTERCLOCKWISE	733-B-SC-2 ASSY
3	SIZE REDUCTION INLET DUCT	36 MC 57 ASSY
2	6,000 CFM AIR FILTRATION SYSTEM	36 MC 79 ASSY

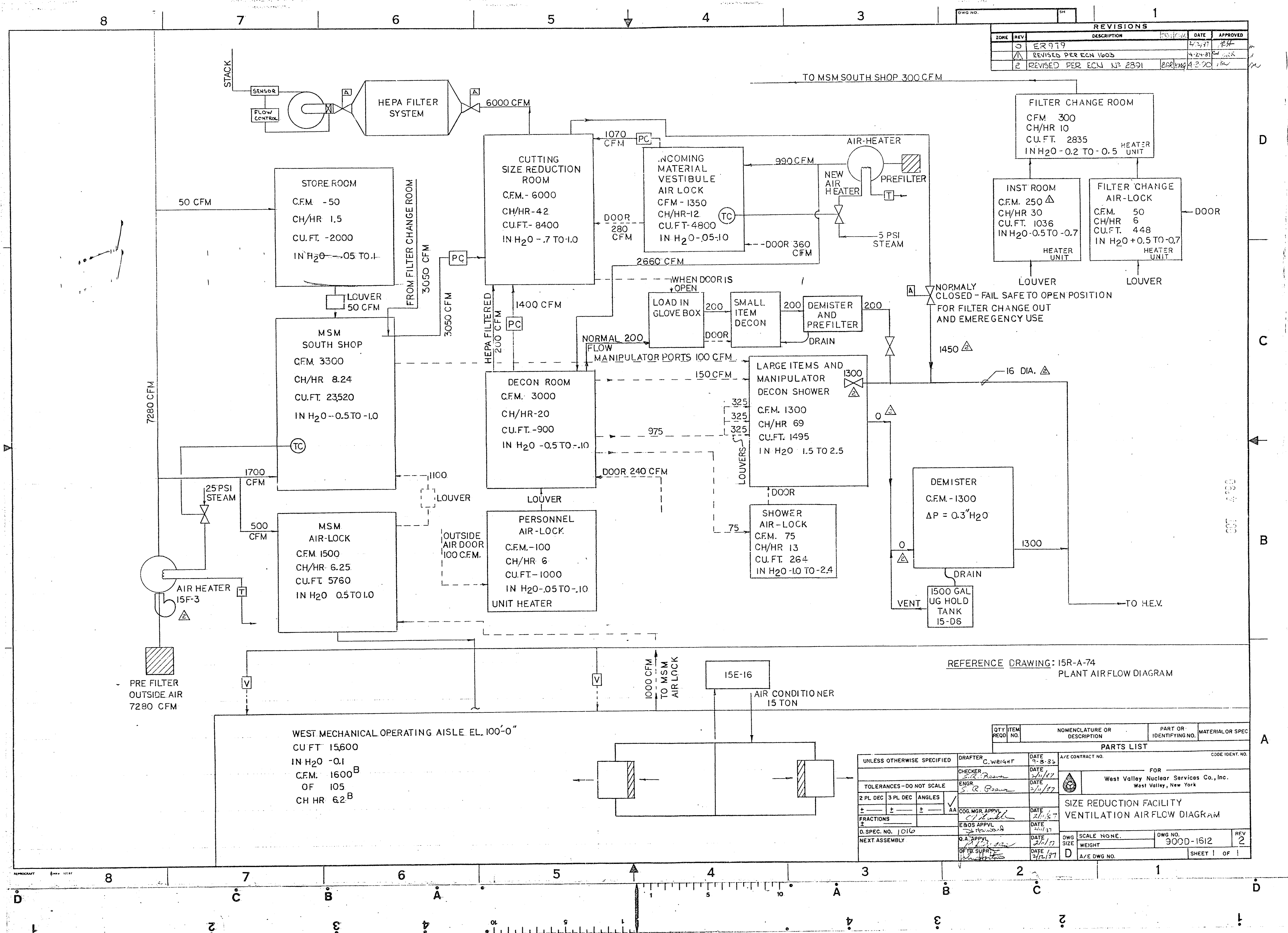
QTY	ITEM	NOMENCLATURE OR	PART OR	MATERIAL OR SPEC
REQD	NO.	DESCRIPTION	IDENTIFYING NO.	

PARTS LIST

UNLESS OTHERWISE SPECIFIED		DRAFTER	DATE	A/E CONTRACT NO.		CODE IDENT. NO.	
TOLERANCES - DO NOT SCALE		CHECKER	DATE	FOR			
2 PL DEC 3 PL DEC ANGLES		ENGR.	DATE	West Valley Nuclear Services Co., Inc.		West Valley, New York	
FRACTIONS		COG. MGR. APPL	DATE	SIZE REDUCTION FACILITY			
D. SPEC. NO. 010		EBOS APPL	DATE	VENTILATION SYSTEM INSTALLATION			
NEXT ASSEMBLY		Q.A. APPL	DATE	DWG	SCALE 1/4" = 1'-0"	DWG NO.	REV
		DRG SUPR	DATE	SIZE	WEIGHT	9000-1611	3
				A/E DWG NO.		SHEET	OF 1

9000-1612

9000-1612



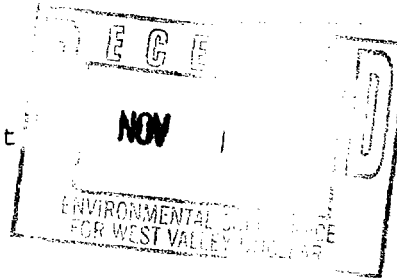


From : Safety & Environmental Assessment

WIN : FB:90:0286

Date : October 31, 1990

Subject : Air Emissions from Drums of O2 Sludge/Resin Processed in the CSRF



To : G. G. Baker, MS-Z-23

cc: M. Brownstein, MS-TSB
D. F. Burke, MS-TSB
J. J. Hollinden, MS-TSB
J. L. Knabenschuh, MS-41A
M. K. Lincoln, MS-Z-23
J. J. Prowse, MS-D
C. J. Roberts, MS-D
K. S. Stretavski, MS-R
S&EA Secretary, MS-D

- References: A) U.S. Environmental Protection Agency, "National Emission Standards for Hazardous Air Pollutants (NESHAP) - Radionuclides," 40 CFR 61, Subpart H, 54 FR 51695-51697, December 15, 1989.
- B) Results of O2 Sludge/Resin Radiological Analysis, WVNS Analytical Lab Log No. 8803320, November 3, 1988.
- C) U.S. Environmental Protection Agency, "User's Guide for AIRDOS-PC, Version 3.0," EPA/520/6-89-035, December 1989.

Twenty (of a total of 847) drums of O2 sludge/resin will be processed in the Contact Size Reduction Facility (CSRF). This will constitute a modification to the CSRF since the source of radioactivity in airborne effluents will be different from that submitted in the original application to construct and operate the CSRF. Pursuant to 40 CFR 61 (reference A), calculations of potential air emissions and off-site dose must be performed to determine whether an application to modify is required. An application must be filed with the EPA if this modification results in an effective dose equivalent (EDE) to the maximally exposed off-site individual in excess of 1 percent of the 10 mrem/year standard.

The source term used in the dose assessment was derived using the following assumptions:

- a) The maximum gross alpha and gross beta concentrations in either sludge or resin (reference B; attachment A) were converted from a dry weight to a wet weight basis.

October 31, 1990

- b) Gross alpha was assumed to be Am-241, and gross beta was assumed to be Sr-90. These radionuclides have the highest dose factors, respectively, of any alpha and beta emitters that are present in significant amounts at the WVDP.
- c) The volume of O2 sludge/resin in twenty 55-gallon drums was assumed to be 4.2 m^3 (i.e., 100 percent capacity). A density of 2 g/mL was assumed to estimate the total mass. The total radionuclide inventory was obtained by multiplying this mass by the respective gross alpha and gross beta concentrations.
- d) An emission factor of 0.001 (fraction of material that becomes airborne) was applied to the radionuclide inventory. This is the emission factor listed in Appendix D to 40 CFR 61 for liquids and particulate solids. Since the sludge/resin drums contain only a small fraction of liquid, this factor is very conservative.
- e) An adjustment factor of 0.0001 was applied to the released fraction to account for the double-stage HEPA filters in the CSRF ventilation system. Appendix D to 40 CFR 61 allows a factor of 0.01 for each bank of HEPA filters.

From the above, 4.1×10^{-10} Ci of Am-241 and 1.4×10^{-8} Ci of Sr-90 are assumed to be released from the CSRF stack as a result of O2 sludge/resin drum processing (see attachment A). This source term was used as input to the AIRDOS-PC dose assessment code (reference C) along with three year average (1987-1989) wind data collected from the 10 meter elevation of the WVDP meteorological tower.

As a result of this modification, the EDE to the maximally exposed off-site individual (residing 1.9 km NNW from the stack) will be less than 10^{-7} mrem (see attachment B). This dose is a factor of one million lower than the threshold requiring an application to modify the CSRF.

On the basis of the above assumptions and calculations, no formal application to modify will be required. However, this analysis must be included as part of the annual report filed with the EPA (per 40 CFR Section 61.94(b)(8)). Assuming the radioanalytical results are representative of the remaining 827 sludge/resin drums, the EDE would scale up to 4×10^{-6} mrem if all these drums are processed in the CSRF. This is still well below the application threshold of 0.1 mrem/year EDE.

E. R. Faillace

E.R. Faillace, Nuclear Engineer
Safety & Environmental Assessment
West Valley Nuclear Services Co., Inc.
Mail Stop - D

ERF:dms

Approved by:

C. S. Roberts
C. S. Roberts, Manager

Attachments: A) Source term estimate
B) AIRDOS-PC output

DMS0530:SEA-146

ATTACHMENT A

SOURCE TERM ESTIMATE FOR TWENTY O2 SLUDGE/RESIN DRUMS

	Concentration ($\mu\text{Ci/g}$)		
	Dry	Wet	
In Sludge ¹ :			
Gross Alpha	2.99×10^{-3}	4.77×10^{-4}	<== maximum alpha
Gross Beta	2.58×10^{-2}	4.12×10^{-3}	
In Resin ² :			
Gross Alpha	2.75×10^{-4}	1.25×10^{-4}	<== maximum beta
Gross Beta	3.51×10^{-2}	1.60×10^{-2}	
Volume in 20 55-gallon (210 l) drums = 4.2 m^3			
Assumed density of sludge/resin = $2 \times 10^6 \text{ g/m}^3$			
Total mass of sludge/resin = $8.6 \times 10^6 \text{ g}$			
Maximum radionuclide inventory in 20 drums:			
	Gross alpha = $4.1 \times 10^{-3} \text{ Ci}$		
	Gross beta = $1.4 \times 10^{-1} \text{ Ci}$		
Emission factor for liquids ³ = 0.001			
Maximum radionuclide release to air:			
	Gross alpha = $4.1 \times 10^{-6} \text{ Ci}$		
	Gross beta = $1.4 \times 10^{-4} \text{ Ci}$		
Adjustment factor for 2-stage HEPA filters ³ = $0.0001 (0.01 \times 0.01)$			
Maximum radionuclide release from stack:			
	Gross alpha = $4.1 \times 10^{-10} \text{ Ci}$ as Am-241 ⁴		
	Gross beta = $1.4 \times 10^{-8} \text{ Ci}$ as Sr-90 ⁵		

¹Moisture Content = 84.05%

²Moisture Content = 54.38%

³From 40 CFR 61, Appendix D

⁴Significant WVDP alpha emitter with highest dose factor

⁵Significant WVDP beta emitter with highest dose factor

ANALYTICAL REQUEST

MRC - 1206

SAMPLE NAME 02 Sludge/Resin CHARGE NO. WH511000Z LOG NO. 8803320
 RESULTS REPORTED TO E. Picazo, J. Curran, D. Burke, Anasol PHONE 4325
 SAMPLED BY R. P. STALLARD DATE 10/28/88 TIME 10/26/88 LOCATION WRPA
 SUPERVISOR OR MANAGER SIGNATURE J. C. Curran

- A. THE SAMPLE DOES NOT CONTAIN RADIOACTIVE MATERIAL OR THIS IS A ROUTINE SAMPLE WITH GROSS ACTIVITY <5E-3 UCI/ML
 B. DOSE RATE AT 2 INCHES MR/HR WC R/S REP. DATE
 C. IS THIS SAMPLE SUSPECTED OF CONTAINING U OR PU? YES OR NO DATE

TO BE FILLED IN WHEN SAMPLE DELIVERED TO LABORATORY PERSONNEL:

DELIVERED LR TIME 1 DATE 10/28 RECEIVED CM TIME 14:00 DATE 10/29/88

PURPOSE OF ANALYSIS

SPECIFIC REQUIREMENTS (CIRCLE ONE) - EPA, NRC, DOE, WASTE CLASSIFICATION, OR OTHER

SPECIFIC HAZARDS (E.G., HF, STRUNG BASE, Cd, ETC.,) ☐ YES ☐ NO

IF YES, LIST

REQUIRED DETECTION LEVELS

SAMPLE WILL BE DISCARDED AFTER TWO (2) WEEKS UNLESS STATED BELOW UPON COMPLETION OF ANALYSES.

COMMENTS Prelim Sampling required for 02 Tank Force.

uCi/g dry except for TRITIUM
22 g/glycidol drum # 12078 - 7 from drum # 1101

ANALYSIS REQUESTED	drum # 11939 Sludge	drum # 11976 Resin	poly liner # 6 H ₂ O	drum # 12078 Attached Sheet for Heavy Metals
<u>Gross α</u>	<u>2.99E-3</u>	<u><2.75E-4</u>	<u><5.12E-6</u>	
UNITS	<u>uCi/g</u>	<u>uCi/ml</u>	<u>uCi/ml</u>	
<u>Gross β</u>	<u>2.58E-2</u>	<u>3.51E-2</u>	<u>1.50E-4</u>	
UNITS	<u>uCi/g</u>	<u>uCi/ml</u>	<u>uCi/ml</u>	
<u>G137</u>	<u>(7.20 ± 2.2)E-3</u>	<u>(2.15 ± .6)E-2</u>	<u>(1.54 ± .15)E-4</u>	
UNITS	<u>uCi/g</u>	<u>uCi/ml</u>	<u>uCi/ml</u>	
<u>Sr 90</u>	<u>(5.74 ± .53)E-3</u>	<u>(8.13 ± .79)E-3</u>	<u>(2.68 ± 1.7)E-4</u>	
UNITS	<u>uCi/g</u>	<u>uCi/ml</u>	<u>uCi/ml</u>	
<u>Au 241</u>	<u><2.60E-4</u>	<u><5.02E-4</u>	<u><7.11E-6</u>	
UNITS	<u>uCi/g</u>	<u>uCi/ml</u>	<u>uCi/ml</u>	
<u>Pu 241</u>	<u>(1.86 ± .05)E-3</u>	<u>(5.4 ± 0.3)E-5</u>	<u>(2.77 ± .18)E-8</u>	
UNITS	<u>uCi/g</u>	<u>uCi/ml</u>	<u>uCi/ml</u>	
<u>+6 VAL-2 Tc 99</u>	<u>3.48E-3</u>	<u>4.43E-3</u>	<u>3.82E-6</u>	
UNITS	<u>uCi/g</u>	<u>uCi/ml</u>	<u>uCi/ml</u>	
<u>% moisture</u>	<u>84.05</u>	<u>54.38</u>	<u>N/A</u>	
UNITS	<u>%</u>	<u>%</u>		
<u>PH</u>	<u>8.58</u>	<u>9.80</u>	<u>12.58</u>	
UNITS				
<u>1st H₂</u>	<u>2.55E-5</u>	<u>4.88E-7</u>	<u>8.79E-6</u>	<u>uCi/g wet</u>
DATE APPROVED	<u>J. R. Stallard</u>	DATE	<u>11-3-88</u>	TIME <u>1912</u>

ATTACHMENT B

40 CFR Part 61
National Emission Standards
for Hazardous Air Pollutants

CLEAN AIR ACT COMPLIANCE REPORT
(Version 3.0 November 1989)

Facility: West Valley Demonstration Project (DOE)
Address: Rock Springs Road
West Valley, NY. 14171
Annual Assessment for Year: 1990
Date Submitted: 10/29/90

Comments: Dose assessment for 20 O2 sludge/resin drums
processed in CSRF

Prepared By:

Name: Ernesto R. Faillace, D.Eng.
Title: Staff Nuclear Engineer
Phone #: (716) 942-4471

Prepared for:
U.S. Environmental Protection Agency
Office of Radiation Programs
Washington, D.C. 20460

Facility: West Valley Demonstration Project (DOE)
 Address: Rock Springs Road City: West Valley State: NY
 Comments: Dose assessment for 20 O2 sludge/resin drums processed in CSRF
 Year: 1990

Effective Dose Equivalent	Dose Equivalent Rates to Nearby Individuals (mrem/year)
	1.01E-07 **
Highest Organ Dose is to ENDOSTEUM	1.59E-06

-----EMISSION INFORMATION-----

Radio- nuclide	Class	Amad	Stack CSRF (Ci/y)
SR-90	D	1.0	1.4E-08
AM-241	W	1.0	4.1E-10
Stack Height (m)			24.08
Stack Diameter (m)			0.53
Momentum (m/s)			12.8

-----SITE INFORMATION-----

Wind Data	AV3YR10M.WND	Temperature (C)	20
Food Source	LOCAL	Rainfall (cm/y)	94
Distance to Individuals (m)	1900	Lid Height (m)	1000

*NOTE: The results of this computer model are dose estimates.
 They are only to be used for the purpose of determining
 compliance and reporting per 40 CFR 61.93 and 40 CFR 61.94.

** DOSE AT ACTUAL RESIDENCE OF MAXIMALLY EXPOSED OFF-SITE INDIVIDUAL
 (1900 m NNW FROM MAIN PLANT AREA) IS CALCULATED TO BE
 8.3E-8 mrem EDE.

ORGAN DOSE TO THE MAXIMALLY EXPOSED INDIVIDUAL

ORGAN	DOSE EQUIVALENT RATE TO THE ORGAN (mrem/y)
GONADS	1.8E-08
BREAST	2.9E-09
RED MARROW	2.4E-07
LUNGS	1.1E-08
THYROID	2.8E-09
ENDOSTEUM	1.6E-06
REMAINDER	6.1E-08
EFFECTIVE	1.0E-07

West Valley Demonstration Project (DOE)

10/29/90 11:26 AM

DOSE TO THE MAXIMALLY EXPOSED INDIVIDUAL
BY PATHWAY FOR ALL RADIONUCLIDES

	EFFECTIVE DOSE EQUIVALENT (mrem/y) -----	DOSE EQUIVALENT TO THE ORGAN WITH THE HIGHEST DOSE ENDOSTEUM (mrem/y) -----
INGESTION	3.4E-08	4.2E-07
INHALATION	6.7E-08	1.2E-06
AIR IMMERSION	1.4E-15	1.9E-15
GROUND SURFACE	8.6E-11	1.1E-10
	-----	-----
TOTAL:	1.0E-07	1.6E-06

West Valley Demonstration Project (DOE)

10/29/90 11:26 AM

DOSE TO THE MAXIMALLY EXPOSED INDIVIDUAL
BY RADIONUCLIDE FOR ALL PATHWAYS

RADIONUCLIDE	EFFECTIVE DOSE EQUIVALENT (mrem/y)	DOSE EQUIVALENT TO THE ORGAN WITH THE HIGHEST DOSE ENDOSTEUM (mrem/y)
SR-90	2.8E-08	3.1E-07
AM-241	7.3E-08	1.3E-06
<hr/>		
TOTAL :	1.0E-07	1.6E-06

West Valley Demonstration Project (DOE)

10/29/90 11:26 AM

EFFECTIVE DOSE EQUIVALENT AS A FUNCTION
OF DISTANCE IN THE DIRECTIONS OF THE
MAXIMALLY EXPOSED INDIVIDUAL FOR
ALL RADIONUCLIDES AND ALL PATHWAYS

DIRECTION : NORTH

DISTANCE (meters)	EFFECTIVE DOSE EQUIVALENT (mrem/y)
-----	-----
1900	1.0E-07
3000	6.2E-08
10000	1.6E-08
80000	5.1E-10

West Valley Demonstration Project (DOE)

10/29/90 11:26 AM

EFFECTIVE DOSE EQUIVALENT AS A FUNCTION
OF ALL DISTANCES AND ALL DIRECTIONS FOR ALL
RADIONUCLIDES AND ALL PATHWAYS

DIRECTIONS:	N	NNE	NE	ENE	E	ESE	SE	SSE
DISTANCE (METERS):								
1900	1.0E-07*	7.0E-08	5.8E-08	4.3E-08	4.3E-08	5.4E-08	8.3E-08	5.1E-08
3000	6.2E-08	4.1E-08	3.2E-08	2.3E-08	2.4E-08	2.8E-08	4.3E-08	2.5E-08
10000	1.6E-08	8.4E-09	6.3E-09	4.4E-09	4.3E-09	5.0E-09	7.6E-09	4.5E-09
80000	5.1E-10	2.5E-10	1.9E-10	1.1E-10	1.1E-10	1.4E-10	2.7E-10	1.9E-10
	S	SSW	SW	WSW	W	WNW	NW	NNW
DISTANCE (METERS):								
1900	1.8E-08	1.0E-08	1.1E-08	9.5E-09	1.2E-08	1.5E-08	3.8E-08	8.3E-08**
3000	9.2E-09	5.1E-09	5.7E-09	4.8E-09	6.2E-09	8.5E-09	2.2E-08	5.0E-08
10000	1.6E-09	9.1E-10	1.0E-09	8.5E-10	1.2E-09	1.7E-09	4.5E-09	1.3E-08
80000	6.2E-11	3.1E-11	3.6E-11	2.8E-11	3.4E-11	4.3E-11	1.3E-10	4.5E-10

* NEAREST RESIDENCE IN THIS SECTOR IS 2470 m FROM MAIN PLANT AREA

** LOCATION OF MAXIMALLY EXPOSED OFF-SITE INDIVIDUAL

West Valley Demonstration Project (DOE)

EFFECTIVE DOSE EQUIVALENT AS A FUNCTION
OF ALL DISTANCES AND ALL DIRECTIONS FOR ALL
RADIONUCLIDES AND ALL PATHWAYS

DIRECTIONS:	N	NNE	NE	ENE	E	ESE	SE	SSE
DISTANCE (METERS):								
1260	1.5E-07	1.1E-07	9.3E-08	6.9E-08	6.9E-08	9.0E-08	1.4E-07	9.0E-08
3000	6.2E-08	4.1E-08	3.2E-08	2.3E-08	2.4E-08	2.8E-08	4.3E-08	2.5E-08
10000	1.6E-08	8.4E-09	6.3E-09	4.4E-09	4.3E-09	5.0E-09	7.6E-09	4.5E-09
80000	5.1E-10	2.5E-10	1.9E-10	1.1E-10	1.1E-10	1.4E-10	2.7E-10	1.9E-10
	S	SSW	SW	WSW	W	WNW	NW	NNW
DISTANCE (METERS):								
<u>1260</u>	3.2E-08	1.8E-08	2.0E-08	1.7E-08	2.0E-08*	2.4E-08*	6.0E-08*	1.2E-07
3000	9.2E-09	5.1E-09	5.7E-09	4.8E-09	6.2E-09	8.5E-09	2.2E-08	5.0E-08
10000	1.6E-09	9.1E-10	1.0E-09	8.5E-10	1.2E-09	1.7E-09	4.5E-09	1.3E-08
80000	6.2E-11	3.1E-11	3.6E-11	2.8E-11	3.4E-11	4.3E-11	1.3E-10	4.5E-10

* NOTE : RESIDENTS IN THESE SECTORS LIVE CLOSER TO THE PLANT. HOWEVER, EDE IS LOWER (DUE TO ATMOSPHERIC DISPERSION) THAN FOR RESIDENT @ 1900 m NNW, CALCULATED TO BE $8.3E-8$ mrem

W \Rightarrow 1820 m
 WNW \Rightarrow 1260 m
 NW \Rightarrow 1380 m

} DISTANCE FROM PLANT

West Valley Demonstration Project (DOE)

METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM----

AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)

IN STABILITY CLASS E	0.0728
IN STABILITY CLASS F	0.1090
IN STABILITY CLASS G	0.1455

PLUME DEPLETION AND DEPOSITION PARAMETERS

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
SR-90	0.000	0.00180	0.940E-05	0.000E+00
AM-241	0.000	0.00180	0.940E-05	0.000E+00

FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

SECTOR	FRACTION OF TIME IN EACH STABILITY CLASS						
	A	B	C	D	E	F	G
N	0.0278	0.0130	0.0198	0.2154	0.3122	0.1411	0.2707
NNW	0.0289	0.0154	0.0172	0.2823	0.2308	0.1177	0.3077
NW	0.0742	0.0261	0.0568	0.4191	0.2229	0.1057	0.0953
WNW	0.1420	0.0475	0.0587	0.4142	0.1873	0.0917	0.0587
W	0.1804	0.0383	0.0694	0.5109	0.1110	0.0436	0.0463
WSW	0.2297	0.0746	0.0962	0.4817	0.0880	0.0119	0.0179
SW	0.2358	0.0933	0.1120	0.4540	0.0686	0.0205	0.0158
SSW	0.2393	0.1127	0.1200	0.4502	0.0567	0.0132	0.0079
S	0.2681	0.1153	0.0852	0.4795	0.0372	0.0121	0.0025
SSE	0.1939	0.0759	0.0840	0.5834	0.0582	0.0035	0.0012
SE	0.1588	0.0698	0.0717	0.5646	0.1211	0.0111	0.0029
ESE	0.0819	0.0404	0.0527	0.6248	0.1715	0.0263	0.0024
E	0.0972	0.0368	0.0546	0.5347	0.1978	0.0712	0.0077
ENE	0.1178	0.0502	0.0657	0.5092	0.1660	0.0693	0.0216
NE	0.0909	0.0544	0.0373	0.4761	0.2328	0.0783	0.0302
NNE	0.0574	0.0239	0.0326	0.3181	0.3819	0.1090	0.0772

FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)						
		A	B	C	D	E	F	G
N	0.150	2.88	2.73	2.91	2.36	1.54	0.87	0.79
NNW	0.136	2.82	3.31	3.10	2.50	1.47	0.88	0.79
NW	0.048	2.19	1.99	2.09	1.75	1.15	0.81	0.79
WNW	0.018	1.86	1.92	1.62	1.45	0.94	0.77	0.77
W	0.015	2.17	2.28	1.52	1.45	0.88	0.77	0.77
WSW	0.013	2.39	1.67	1.89	1.37	1.02	0.77	0.77
SW	0.017	1.90	1.79	1.73	1.49	0.92	0.77	0.77
SSW	0.015	2.10	1.36	1.84	1.39	0.80	0.77	0.77
S	0.032	2.42	2.07	1.92	1.66	0.92	0.84	0.77
SSE	0.102	3.10	2.49	2.44	2.22	1.33	0.93	0.77
SE	0.133	2.92	2.69	2.68	1.98	1.09	0.80	0.98
ESE	0.063	2.31	2.32	1.87	1.69	0.90	0.79	0.77
E	0.045	1.98	1.92	2.06	1.44	0.84	0.78	0.77
ENE	0.050	2.21	2.71	1.93	1.52	0.87	0.78	0.77
NE	0.076	2.69	2.43	1.93	1.91	1.22	0.79	0.77
NNE	0.084	2.70	2.72	2.52	1.91	1.36	0.82	0.78

FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)						
		A	B	C	D	E	F	G
N	0.150	3.52	3.64	3.97	3.93	2.86	1.10	0.85
NNW	0.136	3.80	4.20	4.02	4.06	2.67	1.15	0.84
NW	0.048	3.04	3.31	3.06	2.84	1.77	0.91	0.82
WNW	0.018	2.84	3.03	2.53	2.44	1.25	0.77	0.77
W	0.015	3.09	3.16	2.37	2.31	1.20	0.77	0.77
WSW	0.013	3.19	2.50	2.74	2.07	1.95	0.77	0.77
SW	0.017	2.64	2.53	2.35	2.25	1.50	0.77	0.77
SSW	0.015	2.57	1.92	2.45	2.03	0.86	0.77	0.77
S	0.032	3.07	2.75	2.62	2.47	1.18	1.14	0.77
SSE	0.102	3.54	3.09	2.97	3.16	2.35	1.37	0.77
SE	0.133	3.39	3.26	3.29	2.86	1.66	0.87	1.33
ESE	0.063	2.71	2.85	2.62	2.48	1.17	0.81	0.77
E	0.045	2.61	2.45	2.68	2.15	1.00	0.79	0.77
ENE	0.050	2.76	2.93	2.51	2.19	1.08	0.81	0.77
NE	0.076	3.09	2.95	2.74	2.71	1.92	0.86	0.77
NNE	0.084	3.32	3.35	3.50	2.81	2.10	0.97	0.79

40 CFR Part 61
National Emission Standards
for Hazardous Air Pollutants

CLEAN AIR ACT COMPLIANCE REPORT
(Version 3.0 November 1989)

Facility: West Valley Demonstration Project (DOE)

Address: Rock Springs Road
West Valley, NY. 14171

Annual Assessment for Year: 1989

Date Submitted: 7/26/90

Comments: Dose Assessment for CSRF (no emission
control equipment)

Prepared By:

Name: Ernesto R. Faillace, D.Eng.
Title: Staff Nuclear Engineer
Phone #: (716) 942-4471

Prepared for:
U.S. Environmental Protection Agency
Office of Radiation Programs
Washington, D.C. 20460

CLEAN AIR ACT COMPLIANCE REPORT

7/26/90 9:32 AM

Facility: West Valley Demonstration Project (DOE)

Address: Rock Springs Road

City: West Valley

State: NY

Comments: Dose Assessment for CSRF (no emission control equipment)

Year: 1989

Dose Equivalent Rates to Nearby Individuals (mrem/year)

Effective
Dose Equivalent

0.1200

Highest Organ
Dose is to
ENDOSTEUM

1.3

-----EMISSION INFORMATION-----

Radio-nuclide	Class	Amad	Stack CSRF (Ci/y)
SR-90	D	1.0	9.8E-04
CS-137	D	1.0	1.0E-03
PU-239	Y	1.0	8.6E-04
AM-241	W	1.0	2.9E-05
BA-137M	D	1.0	0.0E-01
Stack Height (m)			24.08
Stack Diameter (m)			0.53
Momentum (m/s)			12.8

1900 m N - no one
lives here.
MEOSI 98 is
1900 m NNW,
which is
9.4E-02
(094)
leaves there

-----SITE INFORMATION-----

Wind Data	89WVDP10.WND	Temperature (C)	20
Food Source	LOCAL	Rainfall (cm/y)	94
Distance to Individuals (m)	1900	Lid Height (m)	1000

*NOTE: The results of this computer model are dose estimates.
They are only to be used for the purpose of determining
compliance and reporting per 40 CFR 61.93 and 40 CFR 61.94.

7/26/90 9:32 AM

ORGAN DOSE TO THE MAXIMALLY EXPOSED INDIVIDUAL

ORGAN	DOSE EQUIVALENT RATE TO THE ORGAN (mrem/y)
GONADS	2.0E-02
BREAST	5.4E-03
RED MARROW	1.2E-01
LUNGS	3.3E-01
THYROID	5.5E-03
ENDOSTEUM	1.3E+00
REMAINDER	6.2E-02
EFFECTIVE	1.2E-01

West Valley Demonstration Project (DOE)

7/26/90 9:32 AM

DOSE TO THE MAXIMALLY EXPOSED INDIVIDUAL
BY PATHWAY FOR ALL RADIONUCLIDES

	EFFECTIVE DOSE EQUIVALENT (mrem/y) -----	DOSE EQUIVALENT TO THE ORGAN WITH THE HIGHEST DOSE ENDOSTEUM (mrem/y) -----
INGESTION	1.8E-02	3.0E-01
INHALATION	9.7E-02	1.0E+00
AIR IMMERSION	1.2E-10	1.6E-10
GROUND SURFACE	2.6E-03	2.7E-03
	-----	-----
TOTAL:	1.2E-01	1.3E+00

West Valley Demonstration Project (DOE)

7/26/90 9:32 AM

DOSE TO THE MAXIMALLY EXPOSED INDIVIDUAL
BY RADIONUCLIDE FOR ALL PATHWAYS

RADIONUCLIDE	EFFECTIVE DOSE EQUIVALENT (mrem/y)	DOSE EQUIVALENT TO THE ORGAN WITH THE HIGHEST DOSE ENDOSTEUM (mrem/y)
SR-90	2.1E-03	2.3E-02
CS-137	7.8E-04	5.2E-04
PU-239	1.1E-01	1.2E+00
AM-241	5.4E-03	9.4E-02
BA-137M	2.6E-03	2.6E-03
TOTAL :	1.2E-01	1.3E+00

West Valley Demonstration Project (DOE)

7/26/90 9:32 AM

EFFECTIVE DOSE EQUIVALENT AS A FUNCTION
OF DISTANCE IN THE DIRECTIONS OF THE
MAXIMALLY EXPOSED INDIVIDUAL FOR
ALL RADIONUCLIDES AND ALL PATHWAYS

DIRECTION : NORTH

DISTANCE (meters)	EFFECTIVE DOSE EQUIVALENT (mrem/y)
-----	-----
1900	1.2E-01
3000	7.2E-02
10000	1.9E-02
80000	5.8E-04

West Valley Demonstration Project (DOE)

7/26/90 9:32 AM

EFFECTIVE DOSE EQUIVALENT AS A FUNCTION
OF ALL DISTANCES AND ALL DIRECTIONS FOR ALL
RADIONUCLIDES AND ALL PATHWAYS

DIRECTIONS:	N	NNE	NE	ENE	E	ESE	SE	SSE
DISTANCE (METERS):								
1900	1.2E-01	8.6E-02	7.2E-02	5.6E-02	4.8E-02	6.7E-02	9.8E-02	6.2E-02
3000	7.2E-02	5.1E-02	4.1E-02	3.1E-02	2.7E-02	3.5E-02	4.9E-02	3.0E-02
10000	1.9E-02	1.1E-02	7.9E-03	5.7E-03	4.8E-03	5.9E-03	8.3E-03	5.0E-03
80000	5.8E-04	2.8E-04	1.9E-04	1.2E-04	1.0E-04	1.5E-04	2.5E-04	1.7E-04
	S	SSW	SW	WSW	W	WNW	NW	NNW
DISTANCE (METERS):								
1900	2.1E-02	1.4E-02	1.1E-02	1.1E-02	1.5E-02	1.8E-02	4.3E-02	9.4E-02
3000	1.0E-02	7.2E-03	5.5E-03	5.6E-03	7.9E-03	9.9E-03	2.3E-02	5.6E-02
10000	1.7E-03	1.2E-03	9.2E-04	9.2E-04	1.3E-03	1.8E-03	4.3E-03	1.4E-02
80000	5.8E-05	3.2E-05	2.6E-05	2.5E-05	3.4E-05	4.3E-05	1.2E-04	4.3E-04

METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM----

AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)

IN STABILITY CLASS E	0.0728
IN STABILITY CLASS F	0.1090
IN STABILITY CLASS G	0.1455

PLUME DEPLETION AND DEPOSITION PARAMETERS

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
SR-90	0.000	0.00180	0.940E-05	0.000E+00
CS-137	0.000	0.00180	0.940E-05	0.000E+00
PU-239	0.000	0.00180	0.940E-05	0.000E+00
AM-241	0.000	0.00180	0.940E-05	0.000E+00
BA-137M	0.000	0.00180	0.940E-05	0.391E+03

QUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

SECTOR	FRACTION OF TIME IN EACH STABILITY CLASS						
	A	B	C	D	E	F	G
N	0.0060	0.0120	0.0216	0.2296	0.2849	0.1474	0.2984
NNW	0.0171	0.0181	0.0226	0.3382	0.2369	0.1149	0.2522
NW	0.0430	0.0239	0.0738	0.5830	0.1810	0.0526	0.0428
WNW	0.0556	0.0492	0.0492	0.6130	0.1408	0.0614	0.0307
W	0.0746	0.0482	0.0746	0.6870	0.0816	0.0270	0.0070
WSW	0.1024	0.1288	0.1200	0.5552	0.0744	0.0096	0.0096
SW	0.1366	0.0636	0.1366	0.5722	0.0542	0.0094	0.0275
SSW	0.0881	0.0945	0.1622	0.6009	0.0473	0.0070	0.0000
S	0.1221	0.1907	0.0972	0.5610	0.0252	0.0000	0.0037
SSE	0.0940	0.1045	0.1082	0.6498	0.0411	0.0012	0.0012
SE	0.0558	0.0791	0.0827	0.6690	0.1062	0.0054	0.0019
ESE	0.0185	0.0203	0.0559	0.7229	0.1536	0.0254	0.0034
E	0.0234	0.0439	0.0643	0.5977	0.1857	0.0748	0.0102
ENE	0.0383	0.0383	0.0630	0.5607	0.2027	0.0901	0.0068
NE	0.0237	0.0473	0.0383	0.5412	0.2108	0.0988	0.0399
NNE	0.0106	0.0146	0.0370	0.3425	0.3624	0.1297	0.1032

FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)						
		A	B	C	D	E	F	G
N	0.155	1.85	3.10	2.88	2.30	1.38	0.84	0.79
NNW	0.128	2.74	3.38	3.71	2.25	1.39	0.87	0.80
NW	0.049	2.64	2.48	1.69	1.79	1.19	0.83	0.77
WNW	0.019	2.47	1.81	1.45	1.58	0.88	0.77	0.77
W	0.017	3.31	2.21	1.49	1.62	0.77	0.77	0.77
WSW	0.013	1.69	1.33	1.32	1.41	0.77	0.77	0.77
SW	0.013	1.62	1.91	1.49	1.38	0.77	0.77	0.77
SSW	0.017	2.66	1.40	2.25	1.42	0.77	0.77	0.00
S	0.032	2.68	2.27	2.11	1.63	0.96	0.00	0.77
SSE	0.098	3.62	2.77	2.21	2.04	1.11	0.77	0.77
SE	0.129	3.70	3.25	2.92	1.96	1.02	0.77	1.19
ESE	0.068	3.17	2.58	2.58	1.76	0.87	0.81	0.77
E	0.045	2.03	1.88	2.75	1.50	0.82	0.77	0.77
ENE	0.051	2.41	3.19	2.15	1.51	0.84	0.79	0.77
NE	0.079	3.24	3.19	2.01	1.97	1.05	0.77	0.77
NNE	0.087	2.72	2.49	2.23	1.86	1.24	0.78	0.78

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)						
		A	B	C	D	E	F	G
N	0.155	3.14	3.97	4.42	4.04	2.57	0.99	0.82
NNW	0.128	3.89	3.70	4.24	3.61	2.39	1.10	0.86
NW	0.049	3.17	3.29	2.45	2.69	1.83	1.02	0.77
WNW	0.019	3.36	2.81	2.34	2.66	1.08	0.77	0.77
W	0.017	3.55	3.08	2.42	2.62	0.77	0.77	0.77
WSW	0.013	2.57	2.06	2.30	2.21	0.77	0.77	0.77
SW	0.013	2.22	2.31	2.21	2.12	0.77	0.77	0.77
SSW	0.017	2.71	1.93	2.65	2.13	0.77	0.77	0.00
S	0.032	3.29	2.97	2.84	2.35	1.28	0.00	0.77
SSE	0.098	4.03	3.31	2.77	3.01	1.64	0.77	0.77
SE	0.129	3.96	3.60	3.49	2.85	1.44	0.77	1.67
ESE	0.068	3.39	3.31	3.15	2.56	1.05	0.90	0.77
E	0.045	2.37	2.46	2.86	2.23	0.95	0.77	0.77
ENE	0.051	2.78	3.42	2.63	2.17	0.97	0.87	0.77
NE	0.079	3.47	3.42	3.02	2.77	1.62	0.77	0.77
E	0.087	2.81	3.22	3.41	2.82	1.90	0.79	0.82

Data Required for Determination of Source Terms for NESHAP Modeling

Source Name: *Contact Size Reduction and Decontamination Facility Ventilation System*

ID: *CSRF-1*

Annual System Throughputs:

Total Curies or Maximum Concentration:

Throughput Volume:

N/A

Ventilation Rates/Hours of Operation:

CONTINUOUS OPERATION

Physical State of Source (Sealed/Solid/Powder/Liquid/Gas):

Controls (If banks of HEPAs, indicate how many):

1 BANK OF ROUGHING FILTERS, 2 BANKS OF HEPA FILTERS IN LINE

*Can be gross alpha/beta. If volatiles such as H-3, C-14 or I-129 are present, list separately.

**For liquids, indicate if temperatures exceed 100 C.

Jan. 1 To Jun. 30, 1990

Sum of Total Curies for Boxes and Drums taken to the CSRF.

Container ID	Total Curies
--------------	--------------

10701	1.00 E-03
12-1282-B	
12-1365-B	0
12-1377-B	0
12-1457-B	0
12-1460-B	9.11 E-02
12-1467-B	0
12-1479-B	1.14 E-01
12-1482	1.82 E-02
12-1554	
12-1559	
12-1587	2.00 E-02
12-1594	1.30 E-02
12-1603	1.91 E-01
12-1623	8.00 E-01
12-1625-B	0
12-1673	
12-1724-B	0
12-1744	1.73 E-02
12-1745	1.16 E-01
12-1755	
12-1765-B	0
12068	1.20 E-05
13410	4.55 E-03
13420	3.34 E-03
13559	
13562	5.74 E-03
13564	1.45 E-02
13565	1.60 E-02
6898	1.61 E-03
6960	4.40 E-04
8946	1.22 E-03
8965	
TD-669	1.34 E-03
TD-690	1.51 E-04
TD-691	9.97 E-04
TD-731	1.14 E-04
TD-768	1.11 E-04
TD-787	1.24 E-03
TD-809	2.93 E-04
TD-825	1.53 E-03
TD-842	
TD-860	1.35 E-03
TD-900	1.21 E-03
TD-911	1.20 E-04
TD-919	1.17 E-04
TOTAL	1.44 E+00

As. med) RELEASED →

Sr-90 (34%)	2.88 E-03
Cs-137 (35%)	9.79 E-04
Pu-239 (30%)	1.01 E-03
Am-241 (1%)	8.64 E-04
	2.88 E-05

← FIXED BEFORE CUTTING:
1/16" CUT / 36" LENGTH ⇒ 1/500 OF
TOTAL ASSUMED TO BE RELEASED
⇒ ASSUMES CPC RADIONUCLIDE RATIO

October 23, 1987

U. S. Environmental Protection Agency
Director, Air & Waste Management Division
Attn: Regional Radiation Representative
2 AWM
26 Federal Plaza
New York, New York 10273

CERTIFIED MAIL
RECEIPT REQUESTED

REFERENCE: Letter C. J. Daggett to W. W. Bixby, dated October 5, 1987

SUBJECT: Notification of Startup of Radioactive Air Sources WVDP-187-01,
WVDP-287-01 and WVDP-487-01 at the West Valley Demonstration
Project West Valley, New York

Gentlemen:

As required by 40 CFR 61.09(a)(2) and the referenced letter, you are hereby notified that the sources of airborne radionuclides identified in the subject approvals to construct/modify were started up. The Contact Size Reduction and Decontamination Facility Ventilation System (WVDP-287-01) was started up on October 13, 1987. The Low-Level Waste Supercompactor Ventilation System (WVDP-487-01) and Building 01-14 Ventilation System (WVDP-187-01) were started up on October 9, 1987.

Sincerely,

Original Signed by
W.W. Bixby

W. W. Bixby, Director
West Valley Project Office

cc: J. H. Barry, DOE-ID
J. P. Hamric, DOE-ID
J. L. Knabenschuh, WVNS
R. G. Spaunburgh, NYSERDA-WV

TGA:253:87 - 0441:87:10

TGA:LEW

led

October 21, 1987

OCT 1987

RECEIVED
DOE-WV

Dr. W. W. Bixby, Director
West Valley Project Office
U. S. Department of Energy
P. O. Box 191
West Valley, New York 14171-0191

Dear Dr. Bixby:

SUBJECT: Notification of Startup of Radioactive Air Sources WVDP-187-01,
WVDP-287-01, and WVDP-487-01 at the West Valley Demonstration
Project, West Valley, NY

As required by 40 CFR 61.09(a)(2) you are hereby notified that the sources of airborne radionuclide emissions identified in the subject approvals to construct/modify were started up. The Contact Size Reduction and Decontamination Facility Ventilation System (WVDP-287-01) started up on October 13, 1987. The Low-Level Waste Supercompactor Ventilation System (WVDP-487-01) and Building 01-14 Ventilation System (WVDP-187-01) started up on October 9, 1987.

This notification should be forwarded no later than October 23, 1987 to:

U.S. Environmental Protection Agency
Director, Air & Waste Management Division
Attn: Regional Radiation Representative
2 AWM
26 Federal Plaza
New York, NY 10278

Very truly yours,

C. J. Roberts

C. J. Roberts, Manager
Safety and Environmental Assessment
West Valley Nuclear Services Co., Inc.

HE:87:0154

JPE:rlc

cc: T. G. Adams, DOE/WVPO

RLC3014:SEA-78

0441:87:10

October 8, 1987

Mr. J. E. Krauss, President
West Valley Nuclear Services Co., Inc.
P. O. Box 191
West Valley, New York 14171

SUBJECT: Interim NESHAPS Approvals To Construct/Modify Sources of
Radionuclide Emissions at the West Valley Demonstration Project

Dear Sir:

Enclosed are the interim approvals from U. S. Environmental Protection Agency, Region II to construct/modify the following sources of radionuclide emissions at the WVDP:

WVDP - 187-01	Building 01-14 Ventilation System
WVDP - 287-01	Contact Size Reduction & Decontamination Facility Ventilation System
WVDP - 387-01	Supernatant Treatment Ventilation System
WVDP - 487-01	Low-Level Waste Supercompactor Ventilation System

Final approval will be issued once the WVDP dose equivalent estimates have been confirmed by the EPA through an independent computer run of the EPA Radiation computer code AIRDOS-EPA.

With the receipt of the above mentioned approvals and in compliance with the terms and conditions of these approvals, you are hereby authorized to proceed with the startup of the subject System.

Sincerely,

WAB

W. W. Bixby, Director
West Valley Project Office

Enclosures

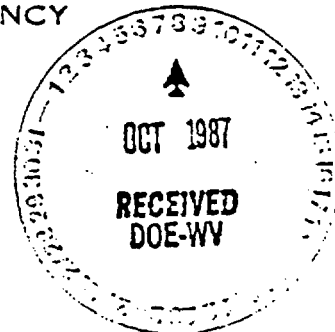
TGA:234:87 - 0373:87:09

TGA: *[signature]*



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION II
26 FEDERAL PLAZA
NEW YORK, NEW YORK 10278



WVDP-287-01

Contact Size Reduction and Decontamination Facility Ventilation System
Approval to Construct/Modify
Sources of Airborne Radionuclide Emissions

In compliance with provisions of the Clean Air Act, as amended (42 U.S.C. §7401 et. seq.) the Department of Energy West Valley Demonstration Project Office is granted interim approval to construct/modify sources WVDP-287-01, located at the West Valley Demonstration Project Site in West Valley, New York. This approval is granted in accordance with the plans and materials submitted with the applications and with Federal Regulations governing the National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61), Subpart H. Any conditions attached to this document are considered part of this approval.

Failure to comply with any conditions or terms set forth in this approval may result in sanctions available under the authority of section 1-604 of Executive Order 12088 as well as enforcement procedures established by the Clean Air Act.

This approval to construct/modify grants no relief from the responsibility for compliance with other applicable provisions of Federal regulations. This approval shall be effective immediately after receipt of the approval to construct/modify by the applicant.

Dated OCTOBER 5, 1987


Regional Administrator

Permit Conditions

I. Emergency Notification

- A. In the event of an accidental/unplanned release of radionuclides which leads to an air emission that may cause the standards of 40 CFR 61 to be exceeded; or may result in a health threat to the public; the DOE-WVDP shall make timely notification to state, local and Federal agencies.
- B. Initial phone notification should include the time of the accident/release; location of accident/release; estimate of quantity release; emergency steps taken to contain/control the release; type of assistance needed; and the name and title of person reporting the incident. A brief written summary of the event shall be submitted to Director, Air & Waste Management Division (Attn: Regional Radiation Representative) within 30 days of the event.
- C. EPA Phone Notification - In Order of Preference
 1. Region II - Regional Radiation Representative
Paul A. Giardina
Work - 212-264-4418
After Hours - 201-548-8730
 2. Region II - Radiation Safety Officer
Shawn W. Googins
Work - 212-264-6459
Home - 201-846-0489
 3. Region II - Health Physicist
Larainne Koehler
Work - 212-264-0546
Home - 201-627-0018
 4. Region II - 24 Hour Emergency Hotline
201-548-8730

D. New York State Radiological Health Contact

1. New York State Warning Point
518-457-2200
2. Backup Number (New York State Police)
518-456-6811
3. New York State Director of Bureau of Environmental Radiation Protection
Dr. Karim Rimawi
Work - 518-458-6461
Off-Duty - 518-439-0865
4. New York State Chief of Environmental Radiation Section
William Condon
Work - 518-458-6459
Off-Duty - 518-463-3704

II. Permit Expiration

- A. This interim approval to construct/modify will remain in effect until final approval is granted by the Regional Administrator or his designee. The approval to Construct/Modify is not transferable to another owner/operator.
- B. The Department of Energy (DOE) may submit to the Regional Administrator (Region II Air & Waste Management Director) a written application for a determination or whether actions intended to be taken by the DOE/WVDP Office constitute a modification or construction of a source subject to the standard. The Regional Administrator will notify the owner or operator of his determination within 30 days after receiving sufficient information to evaluate the application (40 CFR 61.06)
- C. If intended actions to be taken by the WVDP are determined to constitute construction/modification which effects an existing permitted source, the new permit and conditions shall supercede and/or amend the existing permit.
- D. Updates in notification requirements and phone contacts supercede previous permit conditions.

III. Notification of Startup

- A. The owner or operator of each stationary source which will have an initial start-up after the effective date of the standard shall provide written notification to the Administrator as follows:
 - 1. The 30-60 day notification of anticipated startup is waived.
 - 2. A notification of actual WVDP-287-01 source startup within 15 days of that date.

IV. Facility Operation/Maintenance

The facility owner/operator shall maintain all equipment, facilities, and systems installed or used to achieve compliance with the standard (40 CFR 61.92) in a manner consistent with good air pollution control practices for minimizing emissions. Operations, testing and maintenance of such air pollution control systems shall be conducted as noted in the pertinent general information sections (sections B, C, and D) included with your submissions/letter of August 4, 1987. These procedures are acceptable methods in the conduct of a good air pollution control program. Records of maintenance, inspection, testing, repair, monitoring data, and standard operating procedures for conducting such activities shall be maintained pursuant to 40 CFR 61.12 (c).

V. Severability

The provisions of this approval to construct/modify are severable, and, if any provision of this approval to construct/modify is held invalid, the remainder of this approval to construct/modify shall not be affected thereby.

VI. Other Applicable Regulations

The owner/operator of the West Valley Demonstration Project shall construct and operate the proposed source in compliance with all other applicable provisions of 40 CFR Parts 52, 60, and 61.

VIII. Agency Notification

- A. All correspondence as required by this approval to construct/modify shall be sent to:

U.S. Environmental Protection Agency
Director, Air & Waste Management Division
Attention: Regional Radiation Representative
2 AWM
26 Federal Plaza
New York, New York 10278

REQUEST FOR APPROVAL TO CONSTRUCT OR MODIFY
SOURCES OF ATMOSPHERIC EMISSIONS OF RADIONUCLIDES

I. NAME AND ADDRESS OF APPLICANT

U.S. Department of Energy
West Valley Demonstration Project Office
P.O. Box 191
West Valley, New York 14171-0191

Operating Contractor:

West Valley Nuclear Services Co., Inc.
P.O. Box 191
West Valley, New York 14171-0191

II. NAME AND LOCATION OF SOURCE

Name: Contact Size Reduction and Decontamination
Facility Ventilation System

Location: West Valley Demonstration Project
Rock Springs Road
West Valley, New York

Latitude: 42° 27'N

Longitude: 78° 39'W

Date of Construction/Modification: September 1986

Date of Startup: July 1987

(Note: See WVDP General Information Section A for source location map; site boundary, dose receptor location and other general site information.)

III. RELEASE POINT INFORMATION

Emission Point ID:	CSRF-1
Ground Elevation (Ft MSL):	1415'
Stack Height (Ft):	195'
Height Above Structure (Ft):	15'
Inside Dimensions (Inches):	21"
Exit Temperature (°F):	~100°
Exit Velocity (Ft/Sec):	42
Exit Volume (ACFM):	6000

IV. TECHNICAL INFORMATION ABOUT SOURCE

A. Overview of Operations

The Contact Size Reduction and Decontamination Facility (CSRDF) will process "contact handled" (i.e., material having less than 100 mrem/hr surface dose rate) low-level and transuranic metal wastes generated from decontamination of the spent nuclear fuel reprocessing facility at West Valley. Large pipes and vessels will be size reduced by a variety of methods, including plasma arc cutting, portable band saws and abrasive cutting. Metal decontamination will be performed by either high pressure water spray (for large pieces) or by liquid abrasive decontamination spray (LADS). Sectioned and decontaminated wastes will be repackaged for storage pending disposal.

The CSRDF is being installed in the north room of the Master Slave Manipulator Repair Shop (MSM) which has been modified for this new application. Waste boxes enter the facility through the west airlock to a stainless steel lined cutting room. The waste is unpackaged, and packing materials are removed from the room. The metal waste is then either sectioned directly or taken into the water spray booth and decontaminated prior to sectioning. Sectioned pieces and small waste pieces are passed into the LADS booth for final decontamination and repackaging. Repackaged decontaminated material is removed from the facility through a roll-up door in the LADS operating aisle.

The layout of the CSRDF is shown on WVNS Drawing 900D-1610.

B. Ventilation System Description

Ventilation is the primary means of contamination control in the CSRDF, and is provided on a continuous basis by a combination of existing ventilation in the MSM and a new system. Prior to modification, the MSM received 2,700 cfm of filtered and heated supply air from a 7,280 cfm supply system servicing the MSM and portions of the Process Building. The Head End Ventilation System withdrew 1,600 cfm of air from the water spray room, passing it through a wire mesh demister in the south MSM to remove excess water vapor prior to filtration, and an additional 1,900 cfm from the north MSM decontamination tank area. These streams combined downstream of the demister and passed through a prefilter, roughing filter and two stages of HEPA filtration prior to discharge from the Process Building Main Stack. The original ventilation configuration is shown in Drawing 8R-A-74.

The ventilation system was modified and augmented during modifications to the north MSM to install the CSRDF. The HEV is still used to ventilate the spray room, but the LADS system contributes approximately 200 cfm of air through its own demister and prefilter to the HEV at a point downstream of the spray room demister. The 1,900 cfm previously drawn from the North MSM is now valved out except for the emergency use or to augment ventilation during filter changeout in the new CSRDF ventilation system.

A new 6,000 cfm ventilation system has been installed on the roof above the cutting room to provide the additional capacity necessary for contamination control for CSRDF operations. This system draws 6,000 cfm from the cutting room, the area with the greatest airborne contamination potential. HEPA filtered pressure control dampers are provided to establish the proper air pressure

gradient from clean to contaminated areas and to contain contamination in the cutting room should backflow occur. The airflow diagram for the integrated CSRDF and HEV ventilation system is shown in Drawing 900D-1612 and the new ventilation system installation is shown in Drawing 900D-1611.

Ventilation exhaust from this system is passed through a bank of prefilters prior to double stage HEPA filtration. Details of the filter train are shown in Drawing 86HC79, Sheet 1. Following filtration, the exhaust is routed through a 20" ID duct to a discharge point approximately 15 ft. above the highest point of the process building structure.

Both the HEV exhaust and the new CSRDF exhaust are monitored in accordance with the criteria identified in WVDP General Information Section B - Ventilation Exhaust Monitoring. The filter trains are equipped with temperature and pressure differential monitors and alarms in accordance with WVDP General Information Section C - Ventilation Exhaust Filter Monitoring. Prior to startup and after each changeout, HEPA filters are DOP tested in accordance with the requirements identified in WVDP General Information Section D - DOP Test Procedures and Acceptance Criteria.

C. Source Term Development

Operations in the CSRDF involve the handling, sectioning, and decontamination of low-level and transuranic waste. Unpackaging and sectioning activities present the greatest potential for generation of airborne contamination because the material is dry and can be easily resuspended, and cutting operations volatilize activity and generate appreciable amounts of particulates. These

operations will be conducted in the cutting room with operators equipped with supplied air respirators. Ventilation of this area will be provided by the new 6,000 cfm system during waste handling operations, and should this system become inoperable, waste handling operations must be secured until the ventilation is restored.

Spray decontamination, either water spray or LADS, has a much lower potential airborne contamination because the material is being wetted. Spray room operations will require operators to be equipped with supplied air respiratory protection, but the LADS system is a glove box operation allowing the operators to work in a clean operating area. Both of these systems are vented through demisters to the HEV and are exhausted through the Process Building Main Stack. The contribution of these operations to the activity loading of the HEV, which also ventilates the most highly contaminated rooms in the Process Building, is insignificant and completely masked by other sources contributing to the exhaust from the Process Building Main Stack. Accordingly, the source term of concern for the CSRDF is that associated with the new ventilation system for the cutting room.

The source term associated with annual operations of the CSRDF ventilation system is developed in Table CSRDF-1. The assumptions used to develop these values are presented as footnotes to the table. Credit was taken for only two stage HEPA filtration as a conservative measure and as a way to include contributions from operations other than plasma torch cutting which produce smaller (but more difficult to quantify) amounts of airborne activity.

D. Dose Assessment

The radiological impacts to the maximally exposed off-site resident from releases from the CSRDF ventilation system are presented in Table CSRDF-2. Whole body and organ doses are calculated by the AIRDOS-EPA (version CAAC) model as described in WVDP General Information - Section E. Effective dose equivalents calculated using the WVDP variable trajectory atmospheric dispersion model described in WVDP General Information - Section F, coupled to the AIRDOS-EPA dose assessment code are also presented for comparison.

In both cases the source is modeled as a ground level release for conservatism because the release point is not sufficiently above the Process Building to avoid wake effects.

The safety analysis for this facility examined the radiological impacts associated with the failure of a single HEPA filter and a fire destroying the entire filter train. The corresponding effective dose equivalents to the maximally exposed off-site individual are 9×10^{-3} mrem and 5×10^{-2} mrem, respectively.

E. List of Drawings

900D-1610	Size Reduction Facility - Ventilation System in Cutting and Decontamination Rooms
15R-A-74	P&ID Controlled Ventilation System, Below Grade to Elevation 131'-0"
900D-1612	Size Reduction Facility - Ventilation Airflow Diagram
900D-1611	Size Reduction Facility Ventilation System Installation
86-HC-79, Sheet 1	Charcoal/Service Cord - 6,000 cfm Air Filtration System

V

References

ANSI N46.1-1980, Guidance for Defining Safety Related Features of Nuclear Fuel Cycle Facilities.

TABLE CSRDF-1

SOURCE TERM FOR HANDLING AND CUTTING OPERATIONS
IN CONTACT SIZE REDUCTION AND DECONTAMINATION FACILITY

<u>Nuclide¹</u>	<u>Ci/Box²</u>	<u>uCi/g³</u>	<u>Amount Volatilized by Plasma Torch (uCi/yr)⁴</u>	<u>Amount Release From CSRDF Vent (uCi/yr)⁵</u>
Sr-90	2.9 E-01	1.1 E+00	2.5 E+06	2.5 E+01
Cs-137	3.0 E-01	1.1 E+00	2.8 E+06	2.8 E+01
Pu-238	1.5 E-02	5.4 E-02	1.4 E+05	1.4 E+00
Pu-239	3.9 E-03	1.4 E-02	3.5 E+04	3.5 E-01
Pu-240	3.0 E-03	1.1 E-02	2.8 E+04	2.8 E-01
Pu-241	2.0 E-01	7.3 E-01	1.8 E+06	1.8 E+01
Am-241	1.1 E-02	4.0 E-02	1.0 E+05	1.0 E+00
Am-243	1.0 E-04	3.6 E-04	9.0 E+02	9.0 E-03
Cm-244	9.0 E-04	3.3 E-03	8.3 E+03	8.3 E-02

¹ Nuclides derived from West Valley Spent Fuel distribution (sum of HLW and U + Pu products, normalized to 1 Ci Cs-137).

² Based on 100 mrem/hr criterion, all gamma activity assumed to be Cs-137.

³ Assumes waste package contains 275 kg of steel waste.

⁴ Assuming:

Density Stainless Steel = 7.87 g/cm³

Plasma Torch Kerf = 1/8"

Avg. Thickness of Steel 1/4"

Avg. Cutting per Day = 200'

Days of Operation per Year = 250

10,000 g Steel
Volatilized/Day

2,500,000 g Steel
Volatilized/Yr

⁵ Assume decontamination factor of 10⁵ (ANSI N46.1-1980) i.e., credit taken for two stage HEPA filtration, no credit for other control equipment or plateout.

TABLE CSRDF-2

ESTIMATED ANNUAL DOSES FOR RELEASES FROM
CONTACT SIZE REDUCTION AND DECONTAMINATION FACILITY

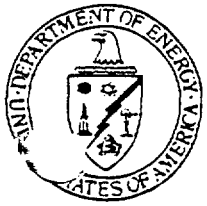
Nuclide	Amount Released ($\mu\text{Ci/yr}$)	Effective Dose Equivalent (rem) ²	Whole Body Dose (rem) ³	Organ Dose (rem) ³	Organ ³
Sr-90	2.5 E+01	1.8 E-07	1.5 E-07	8.3 E-07	E.B. ⁴
Cs-137	2.8 E+01	2.8 E-07	9.5 E-08	1.2 E-07	Thyroid
Pu-238	1.4 E+00	2.4 E-07	1.1 E-06	3.1 E-05	E.B.
Pu-239	3.5 E-01	6.7 E-08	3.2 E-07	9.1 E-06	E.B.
Pu-240	2.8 E-01	5.3 E-08	2.5 E-07	7.3 E-06	E.B.
Pu-241	1.8 E+01	7.0 E-08	3.6 E-07	1.1 E-05	E.B.
Am-241	1.0 E+00	2.1 E-07	1.0 E-06	2.7 E-05	E.B.
Am-243	9.0 E-03	1.9 E-09	9.0 E-09	2.4 E-07	E.B.
Cm-244	8.3 E-02	9.1 E-09	3.8 E-08	9.1 E-07	E.B.
		<u>1.1 E-06</u>	<u>3.3 E-6</u>	<u>8.8 E-5</u>	E.B.

¹ Nuclides listed are those contributing ≥ 0.1 percent of total dose.

² Based on WVDP Site Specific Dispersion (See WVDP General Information Section F) coupled to AIRDOS-EPA dose assessment code.

³ Values calculated by AIRDOS-EPA version CAAC - (See WVDP General Information - Section E).

⁴ E.B. = Endosteal Bone



West Valley Project Office

Idaho Operations Office

P.O. Box 191

West Valley, NY 14171

May 20, 1987

Mr. Conrad Simon, Director
Air and Waste Management Division
U. S. Environmental Protection Agency
Region II
26 Federal Plaza (Foley Square)
New York, New York 10278

SUBJECT: Notification of Anticipated Startup of the Contact Size
Reduction and Decontamination Facility Ventilation System at the
West Valley Demonstration Project (WVDP)

Dear Mr. Simon:

As required by Title 40 of the Code of Federal Regulations Part 61.09(a)(1) of the National Emission Standards for Hazardous Air Pollutants, you are hereby notified that the Contact Size Reduction and Decontamination Facility Ventilation System at the West Valley Demonstration Project in West Valley, New York, is anticipated to become fully operational on July 15, 1987. A complete description of this facility was included in the application for construction approval provided in the May 20, 1987, letter from W. W. Bixby, Director of the West Valley Demonstration Project to your office.

Should you or your staff have any questions concerning this notification, please contact me at 716-942-4312.

Sincerely,

W. W. Bixby, Director
West Valley Project Office

cc: S. Meyers, EPA (ANR-458)
M. L. Walker, DOE-HQ (EH-1)

EM:142:87

EM:t1





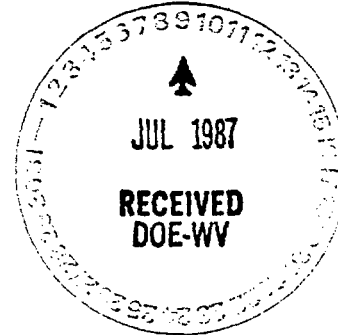
West Valley
Nuclear Services Company
Incorporated

WD:87:0437

P.O. Box 191
West Valley, New York 14171-0191

July 9, 1987

Dr. W. W. Bixby, Director
West Valley Project Office
U. S. Department of Energy
P. O. Box 191
West Valley, New York 14171-0191



Dear Dr. Bixby:

SUBJECT: NESHAPS Application Materials

Enclosed are the NESHAPS application materials for the following systems:

- Supernatant Treatment System
- Cement Solidification System
- Lag Storage/Super Compactor
- Contact Handled Size Reduction

In addition to the four facility specific packages, there is also a package of Project general information which provides overview materials and data common to the various systems and to the Project as a whole.

These materials are for your review and further disposition.

Very truly yours,

For C. J. Roberts, Manager
Safety and Environmental Assessment
West Valley Nuclear Services Co., Inc.

PCN:mcw

HE:87:0092

MCW0720:S/EA08

0344:87:10